

REMARKS

In the February 24, 2005 Office Action, the Examiner noted that claims 1-16 were pending in the application; rejected claims 1-16 under the second paragraph of 35 U.S.C. § 112; and rejected claims 1 and 9 under 35 U.S.C. § 102(e). In rejecting the claims, U.S. Patent 6,621,625 to Zhang et al. (Reference A) was cited. Claims 17-20 have been added and thus, claims 1-20 remain in the case. The Examiner's rejections are traversed below.

The Application

In a disclosed embodiment, an optical node includes an optical pre-amplifier and an optical post-amplifier. The optical pre-amplifier is started in automatic level control (ALC) mode after the optical pre-amplifier receives a notice of the normal operation state from a preceding (fore) node via an optical supervisory channel (OSC), as described at page 13, lines 6-10; page 12, lines 5-11; and page 38, lines 14-20. When the output level of the optical pre-amplifier falls within a target output level range for more than a specified time and then the gain remains substantially constant (see, page 13, lines 12-15) or the fore node maintains a normal operation state (see page 18, lines 3-5) for a period of time set by a guard timer, the optical pre-amplifier is changed to automatic gain control (AGC) mode using the gain determined by the ALC mode (see page 13, lines 15-25; page 24, lines 3-5; and page 38, lines 14-20). A "normal operation state" is defined as "when the input optical level ... falls within a specified range and the gain of the optical amplifier falls within a specified range" (page 12, lines 4-7). While the optical pre-amplifier is in operation in AGC mode, the optical pre-amplifier is periodically changed to ALC mode to correct the optical pre-amplifier gain. Each time this occurs, the optical pre-amplifier is returned to the AGC mode under the same conditions as above.

Rejection under 35 U.S.C. § 112, Second Paragraph

On page 2 of the Office Action, claims 1-16 were rejected under 35 U.S.C. § 112, second paragraph as indefinite because it was unclear to the Examiner whether the pre-amplifier recited in claim 1 operates in both AGC and ALC modes during the period of routine operation or whether there are specified time intervals during routine operation when the pre-amplifier is switched to ALC mode from AGC mode. Independent claims 1 and 9 have been amended to more clearly recite the changes from ALC mode to AGC mode and from AGC mode to ALC mode. In addition, independent claims 1 and 9 have been amended to use the term "normal" instead of "routine" because "normal" is more commonly used in the dependent claims and the

term "normal" is more clearly defined in the specification, although the terms "normal" and "routine" are used interchangeably in the specification.

If the claims as amended are not deemed to meet the requirements of 35 U.S.C. § 112, second paragraph, the Examiner is respectfully requested to contact the undersigned by telephone to arrange an Examiner Interview prior to issuing the next Office Action, so that amendment of the claims to meet the requirements of 35 U.S.C. § 112, second paragraph can be completed prior to issuance of the next Office Action.

Rejection under 35 U.S.C. § 102(e)

On page 3 of the Office Action, claims 1 and 9 were rejected under 35 U.S.C. § 102(e) as anticipated by Zhang et al. Specifically, it was asserted that in Fig. 1 of Zhang et al. the G1 amplifier 12 corresponds to the optical pre-amplifier of the claims, the G2 amplifier 15 corresponds to the optical post-amplifier of the claims, AGC/ALC 19a provides automatic gain control of the post-amplifier (Office Action, page 3, line 12) and "means (160 [is used] for controlling the level of the pre-amplifier" (Office Action, page 3, line 13). Since, the reference numeral "160" does not appear in any of the figures or the text of Zhang et al., it will be assumed that the "0" in "160" should have been a right parenthesis and the intent was to assert that Zhang et al. teaches an ALC 16 in Fig. 1 that controls the pre-amplifier as recited in claims 1 and 9.

If the assumption set forth in the preceding paragraph is correct, it is first noted that ALC 16 controls operation of G2 amplifier 15 which the Examiner identified as corresponding to the optical post-amplifier of the claims, while ALC 13 controls operation of G1 amplifier 12 which the Examiner identified as corresponding to the optical pre-amplifier of the claims. Therefore, the extent to which ALC 13 is disclosed as controlling the operation of the pre-amplifier as recited in the claims will be discussed below.

Nothing was cited or has been found in Zhang et al. that teaches or suggests

starting the optical pre-amplifier in an automatic level control mode; controlling the optical pre-amplifier in an automatic gain control mode during normal operation; and changing the optical pre-amplifier from the automatic gain control mode to the automatic level control mode in specified periods during normal operation

(claim 1, last 6 lines). The only descriptions of ALC 13 in Zhang et al. is that

ALC 13 controls the output level of the first stage G112 via an input 13a. In one embodiment of the invention, the first stage G112 is an optical fiber amplifier (OFA) such as an erbium-doped fiber amplifier (EDFA), and input 13a is a pump control input used to control the power output of the laser pump in the OFA

(column 2, lines 30-35) and with respect to Fig. 3, the "ALC 13 controls 53 the optical level of the input optical signal" (column 4, lines 18-19). None of the details of how the pre-amplifier is controlled as recited in the independent claims and quoted above from claim 1 is even hinted at by these descriptions in Zhang et al. Therefore, it is submitted that claims 1 and 9 and claims 2-8 and 10-16 which depend therefrom are allowable over Zhang et al.

New Claims

Claim 17 has been added to recite the initial change from the ALC mode to the AGC mode and the periodic nature of the change from the AGC mode to the ALC mode. New claim 18 recites limitations similar to claim 1, but includes "periodically changing the optical pre-amplifier from the automatic gain control mode to the automatic level control mode" (claim 18, last 2 lines) as recited in new claim 17. Claim 19 adds details of repeatedly changing back to the AGC mode from the ALC mode "after each periodic changing of the optical pre-amplifier from the automatic gain control mode to the automatic level control mode" (claim 19, lines 3-4) as recited in claim 18 and claim 20 adds details of when the optical preamplifier is changed from ALC mode to AGC mode, as described, e.g., at page 13, lines 6-15 and page 17, last line to page 18, line 7 of the application. Therefore, it is submitted that claim 17-20 patentably distinguish over Zhang et al. for reasons similar to those discussed above.

As a result of the operations recited in the claims, the amplifier gain is automatically set according to the optical loss between optical nodes, as described at page 18, lines 8-10 of the application. Nothing has been cited or found in Zhang et al. teaching or suggesting this benefit of the present invention. Therefore, the claims are not obvious over Zhang et al.

Request for Non-Final Second Office Action

Applicants respectfully request that the next Office Action not be made final because, the examination of dependent claims 2-8 and 10-16 was incomplete and not in compliance with 37 CFR 1.104. Also, see MPEP 707.07(d). The Office Action failed to present a prima facie showing of either anticipation or obviousness.

Summary

For the reasons set forth above, it is submitted that Zhang et al. does not teach or suggest the features of the present claimed invention. Thus, it is submitted that claims 1-20 are in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are courteously solicited.

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Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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